

<b>Title</b>	<b>Operate a waste gas system in a kraft pulp chemical plant</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to: demonstrate knowledge of a waste gas system; operate a waste gas system; and monitor and control the performance of a waste gas system.
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<b>Classification</b>	Wood Fibre Manufacturing > Pulp and Paper - Chemical Plants
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<b>Available grade</b>	Achieved
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### Guidance Information

#### 1 Legislation and references

Legislation, regulations and/or industry standards relevant to this unit standard include but are not limited to the:

- Hazardous Substances and New Organisms Act 1996;
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- Health and Safety at Work (Major Hazard Facilities) Regulations 2016.

#### 2 Definition

*Worksite documentation* refers to organisation policies and procedures that are documented in memo, electronic, or manual format and available in the workplace, and are consistent with manufacturer's requirements. They may include but are not limited to – standard operating procedures, site specific procedures, site safety procedures, equipment operating procedures, quality assurance procedures, product quality specifications, references, approved codes of practice, housekeeping standards, environmental considerations, sustainability, on-site briefings, supervisor's instructions, and procedures to comply with legislative and local body requirements relevant to the pulp and paper industry.

#### 3 Range

Waste gas system includes – waste producers, ejector, scrubber, incinerator and lime kiln, the pipelines, valves and instrumentation in a kraft pulp chemical plant.

#### 4 Assessment information

Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable service information, worksite documentation and legislative requirements. This includes the knowledge and use of suitable tools and equipment.

- 5 Recommended skills and knowledge  
Unit 3626, *Manufacture burnt lime for kraft liquor production in a pulp or paper plant*,  
or demonstrate equivalent knowledge and skills.
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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of a waste gas system.

#### Performance criteria

- 1.1 Purpose and operation of the waste gas system are explained.
- 1.2 Operating components and process controls of the waste gas system are described, and their purpose and operation are explained.
- 1.3 Operating parameters and capability of the waste gas system are explained.
- Range operating parameters may include but are not limited to – vacuum, scrubber level, temperature, incinerator temperature, kiln temperature, safe operating envelopes.
- 1.4 Effect of waste gas on lime kiln operation is explained.
- 1.5 Hazards associated with the waste gas system are identified and actions to be taken to minimise, or eliminate the hazard are explained.
- Range hazards may include but are not limited to – chemicals, heat, waste gas, confined space, environmental.
- 1.6 Environmental impact on the effluent system caused by chemical loss to drains is explained.
- 1.7 Consequences of non-compliance with worksite operating procedures are explained.
- Range consequences may include but are not limited to – product quality, health and safety, environmental, plant integrity.
- 1.8 Roles and responsibilities of the waste gas operator are explained.

### Outcome 2

Operate a waste gas system.

**Performance criteria**

2.1 Safe work practices associated with operating the waste gas system are identified and used.

Range practices may include but are not limited to – isolation procedures, lock-outs or tag-outs, emergency stops, machine guarding, wearing appropriate safety equipment, waste gas work permits.

2.2 Plant is set up, started up, operated, and shut down.

**Outcome 3**

Monitor and control the performance of a waste gas system.

**Performance criteria**

3.1 Waste gas system is monitored and parameters are controlled in accordance with operating parameters.

3.2 Equipment faults and malfunctions are identified, and relevant corrective actions are taken.

Range equipment faults and malfunctions may include but are not limited to – electrical, mechanical, instrumentation, distributed control system.

3.3 Production and maintenance records are completed.

<b>Planned review date</b>	31 December 2028
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	18 December 2006	31 December 2024
Review	2	24 October 2014	31 December 2025
Review	3	30 November 2023	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0173
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Comments on this unit standard**

Please contact Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council [qualifications@hangaarorau.nz](mailto:qualifications@hangaarorau.nz) if you wish to suggest changes to the content of this unit standard.